Claims

1. Wood component in which the wood has altered properties in geometrically defined areas **characterized in that** said geometrically defined areas have the properties of solidified wood melts free from pyrolytic degradation products.

2. Component to Claim 1 **characterized in that** the geometrically defined areas are single or several melted wood cells melted together so that the capillary take-up of humidity in said geometrically defined areas is limited, or prevented, respectively.

3. Component to Claim 1 or 2 **characterized in that** the geometrically defined areas are one or several cell walls melted in one or several cutting directions so that the diffusion resistance in said geometrically defined areas to ambient media rises independent of the cutting direction.

4. Component to any of the above-mentioned Claims **characterized in that** said geometrically defined areas are clearly visually different from non-melted wood in their optical properties absorptivity, reflectivity, diffusing power, and hence, lustre.

5. Component to any of the above-mentioned Claims **characterized in that** the geometrically defined areas have a noticeably higher hardness and abrasion resistance.

6. Component to any of the above-mentioned Claims **characterized in that** the deformation behaviour in the geometrically defined areas is noticeably altered compared with the original state.

7. Component to any of the above-mentioned Claims **characterized in that** the bulk in a geometrically defined area of the component is below the surface.

8. Component to any of the above-mentioned Claims **characterized in that** the physical and/or chemical properties are additionally and deliberately altered by substances incorporated into the melt.

9. Component to Claim 8 **characterized in that** the physical and/or chemical properties are deliberately altered.

10. Component to Claim 8 or 9 **characterized in that** the incorporated substances are particles and/or pigments.

11. Method for producing a wood component to any of the above-mentioned claims **characterized in that** the geometrically defined areas are melted by contact-free, short-time, preferably within less than or equal 50 ms, high energy input so that the degree

of polymerization of the chains decreases quickly and plasticization starts, and the melt solidifies within this period of time.

12. Method to Claim 11 **characterized in that** the energy input is carried out through electromagnetic radiation that can be controlled extremely accurately and quickly regarding the lateral extension of the range of interaction, time of interaction and intensity, having a wavelength adapted to the desired depth of the range of interaction.

13. Method to Claim 11 or 12 **characterized in that** the process is carried out under inert gas.

14. Method to Claim 11 or 12 **characterized in that** the process is carried out in free atmosphere, i.e. in free air, at room temperature and normal atmospheric pressure.

15. Method to any of the Claims 11 to 14 **characterized in that** extraneous substances are incorporated into the geometrically defined areas by the melting process.

16. Method to any of the Claims 11 to 14 **characterized in that** the energy input is by electromagnetic waves.

17. Method to Claim 16 **characterized in that** electromagnetic waves in form of laser light are used.

18. Method to any of the above-mentioned Claims **characterized in that** the depth, or thickness of the range of interaction, respectively, according to the objective of the processing action is adjusted by selection of the wavelength, or range of wavelength, respectively, and the power density of the electromagnetic radiation as well as the time of interaction between the electromagnetic waves and the geometrically defined areas.

19. Method to any of the above-mentioned Claims **characterized in that** the lateral extension of the range of interaction, the time of interaction and the intensity are realised by combination of the relative motion between beam and workpiece as well as by methods of dynamic beam forming and beam focussing.

20. Method to any of the Claims 11 to 19 **characterized in that** the energy input is carried out using a pulse-type laser.

21. Method to Claim 20 **characterized in that** the time of interaction between the laser beam and the geometrically defined areas is equivalent to the pulse length of the laser.

22. Application of the component to Claim 1 to 10 **characterized in that** building parts consisting of several components of wood parts and/or wood particles are manufactured by joining said components through the wood melt.

23. Application of the component to Claim 22 **characterized in that** wood parts and/or wood particles are joined with each other by welding.

24. Application of the component to Claim 23 **characterized in that** wood parts and/or wood particles are joined with each other by welding using wood-inherent filling materials.

25. Application of the component to Claim 24 **characterized in that** lignin and/or cellulose are used as wood-inherent filling materials.

26. Application of the component to any of the above-mentioned Claims **characterized in that** building parts consisting of several components, at least one of which is wood, are manufactured by joining of the wood parts and/or wood particles with other components.

27. Application of the component to Claim 26 **characterized in that** said other components that are not wood, are transparent polymers and/or fibrous materials.

28. Application of the component to Claim 26 or 27 **characterized in that** the wood parts and/or wood particles are welded with other components by melting.

With 1 sheet of drawings.

ADD A1